

Solubility of IFN-Beta-1b in Sodium Chloride Solutions

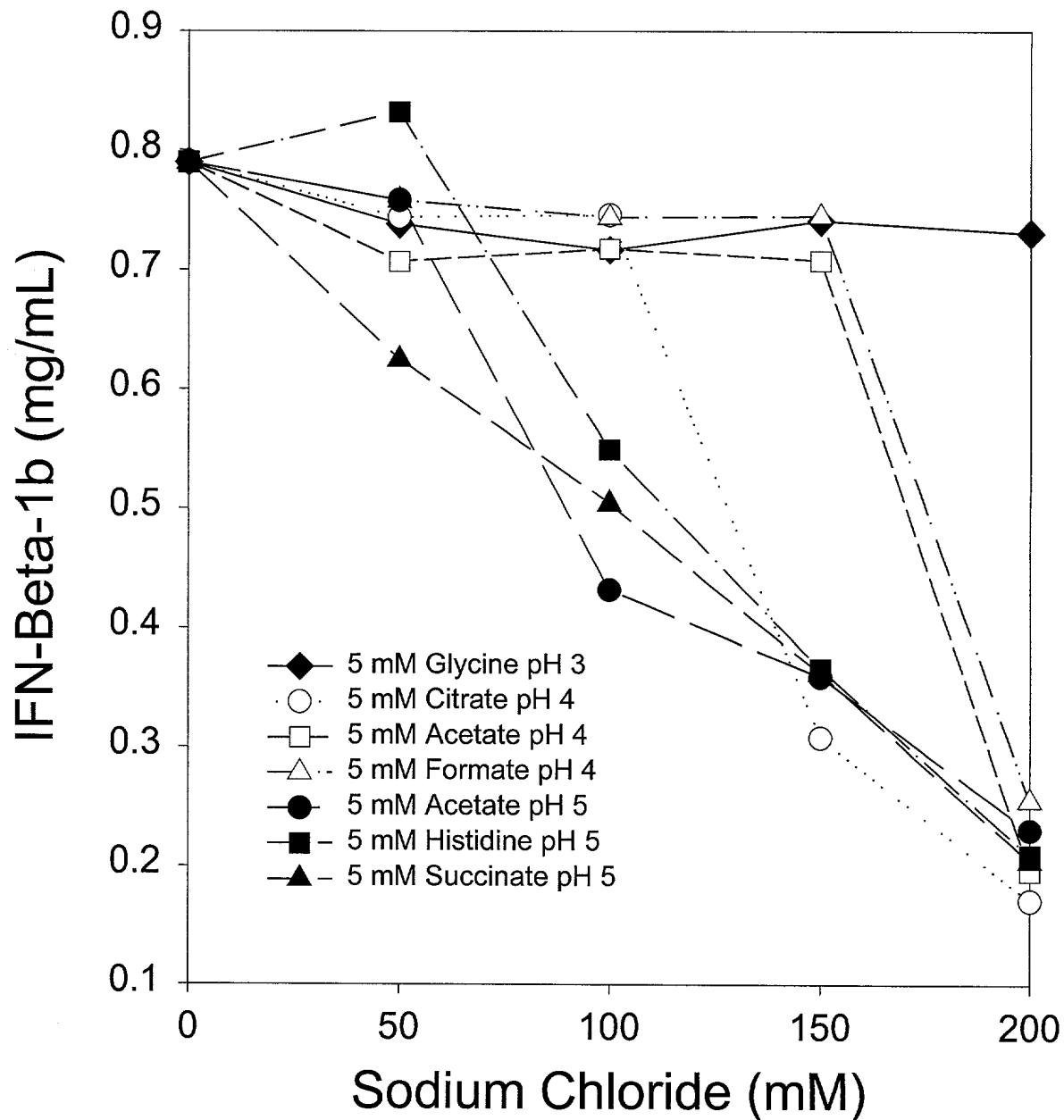


Figure 1

IFN-Beta-1b Solubility in Low-Ionic-Strength Formulations

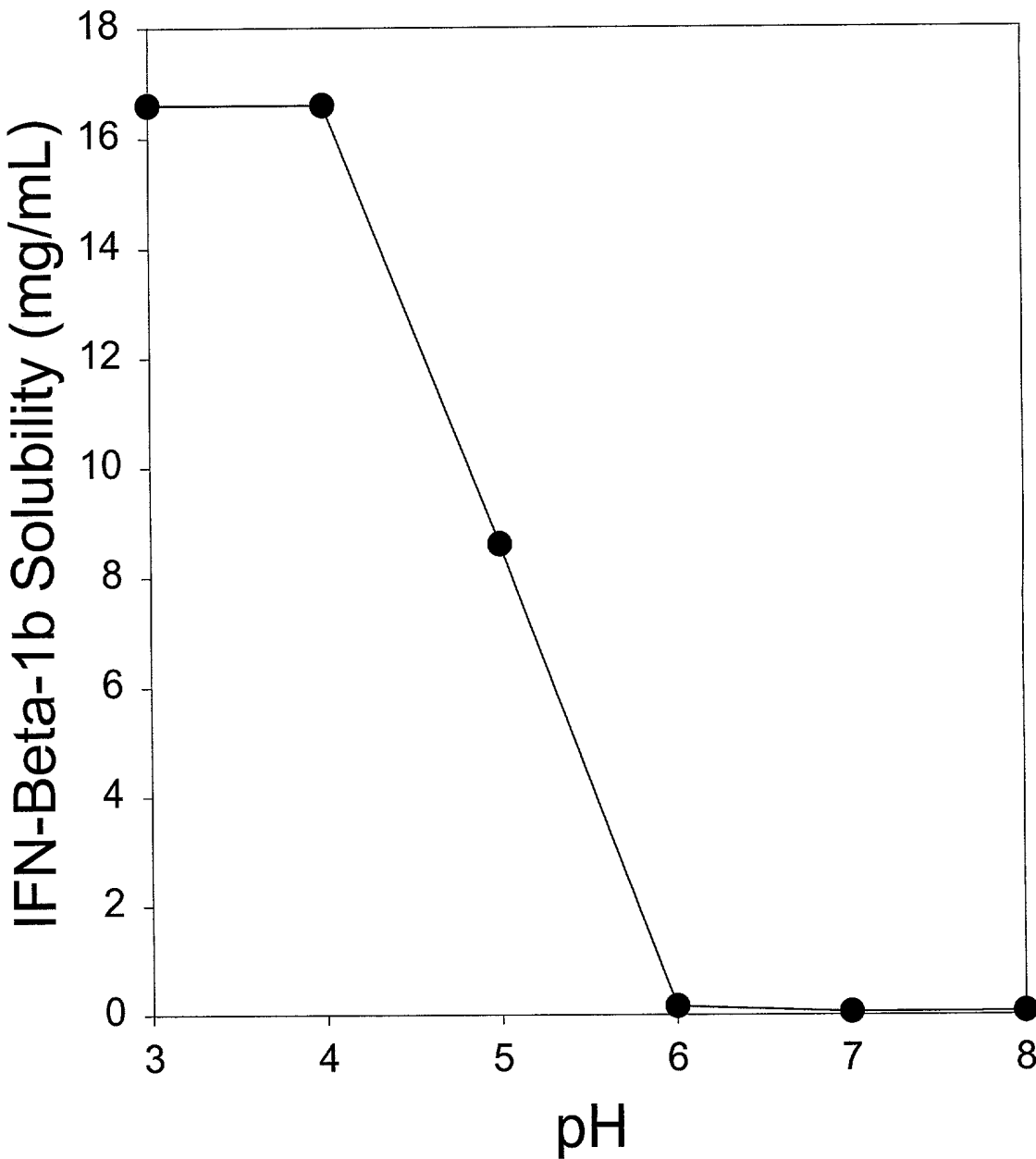


Figure 2

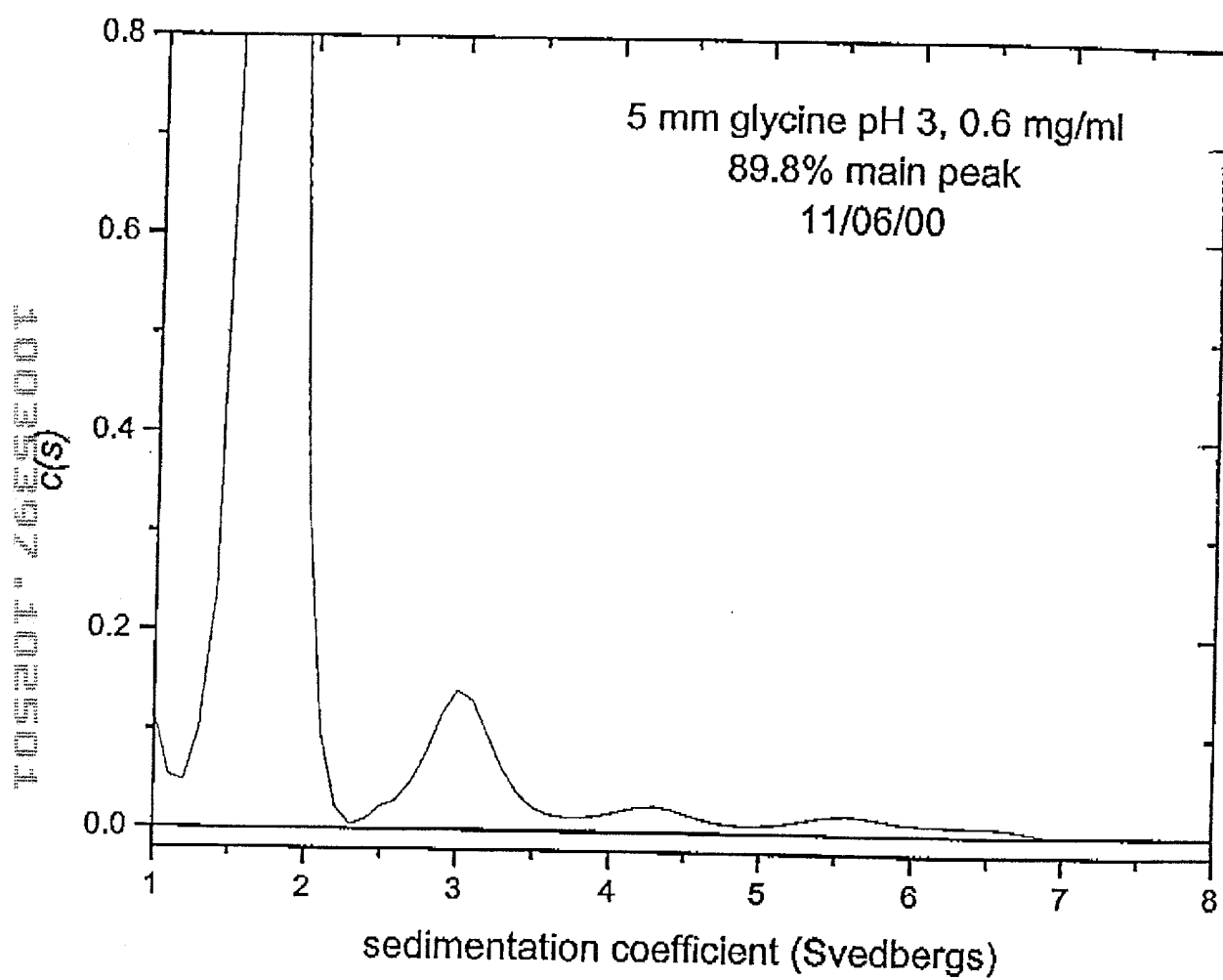


Figure 3

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka
Application No: Not yet assigned
Atty Dkt No: PP17201.003 (35784/240412)

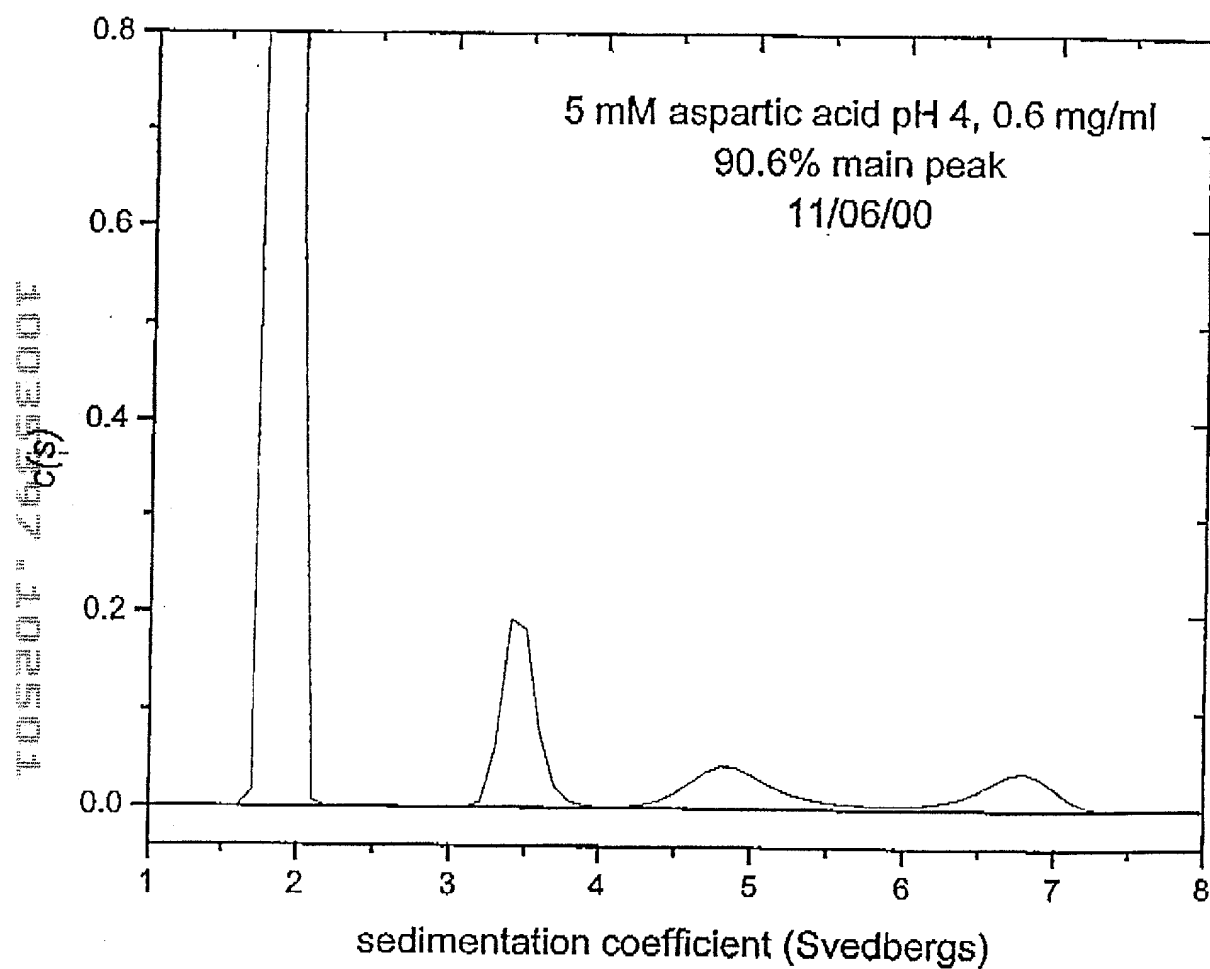


Figure 4

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka
Application No: Not yet assigned
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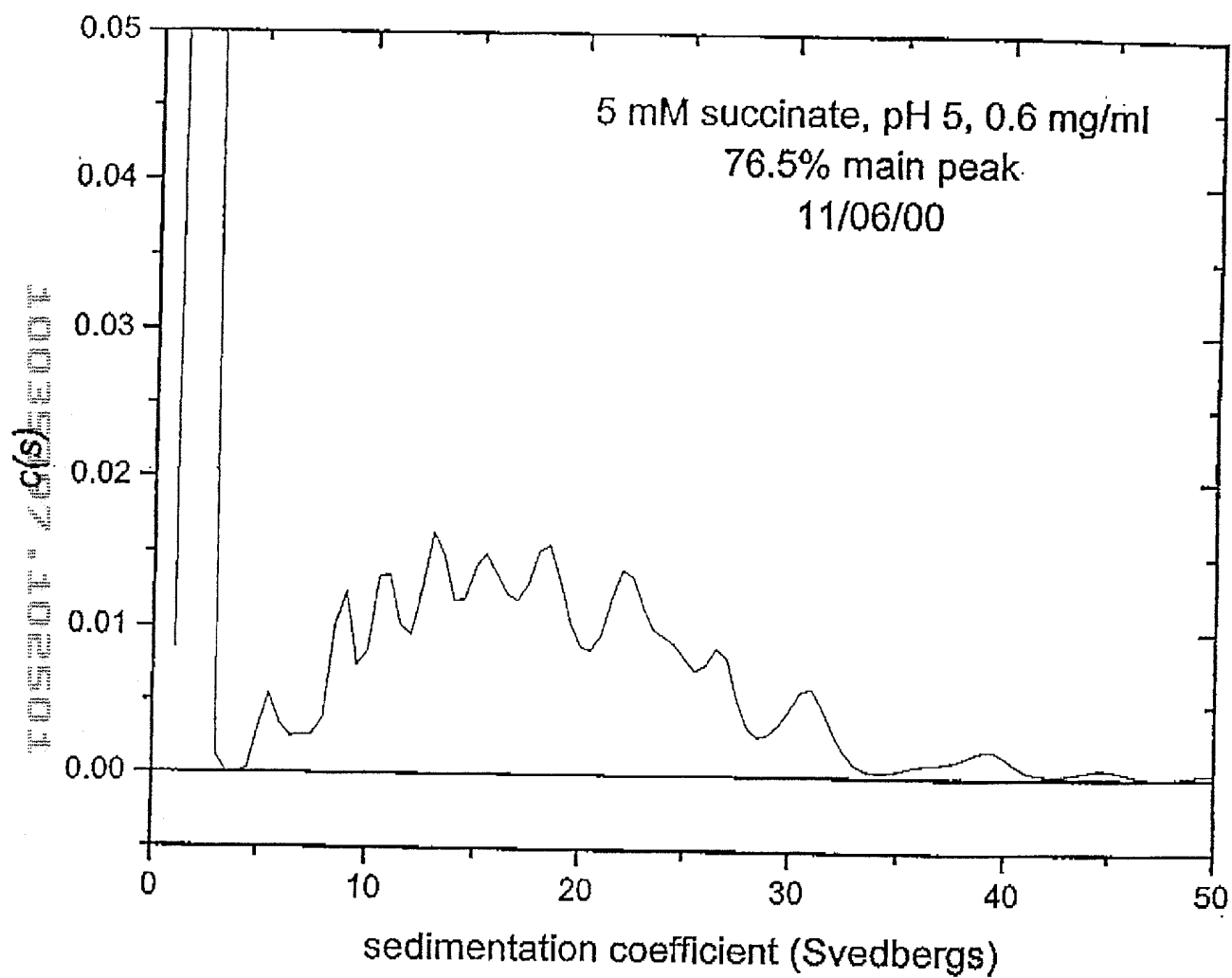


Figure 5

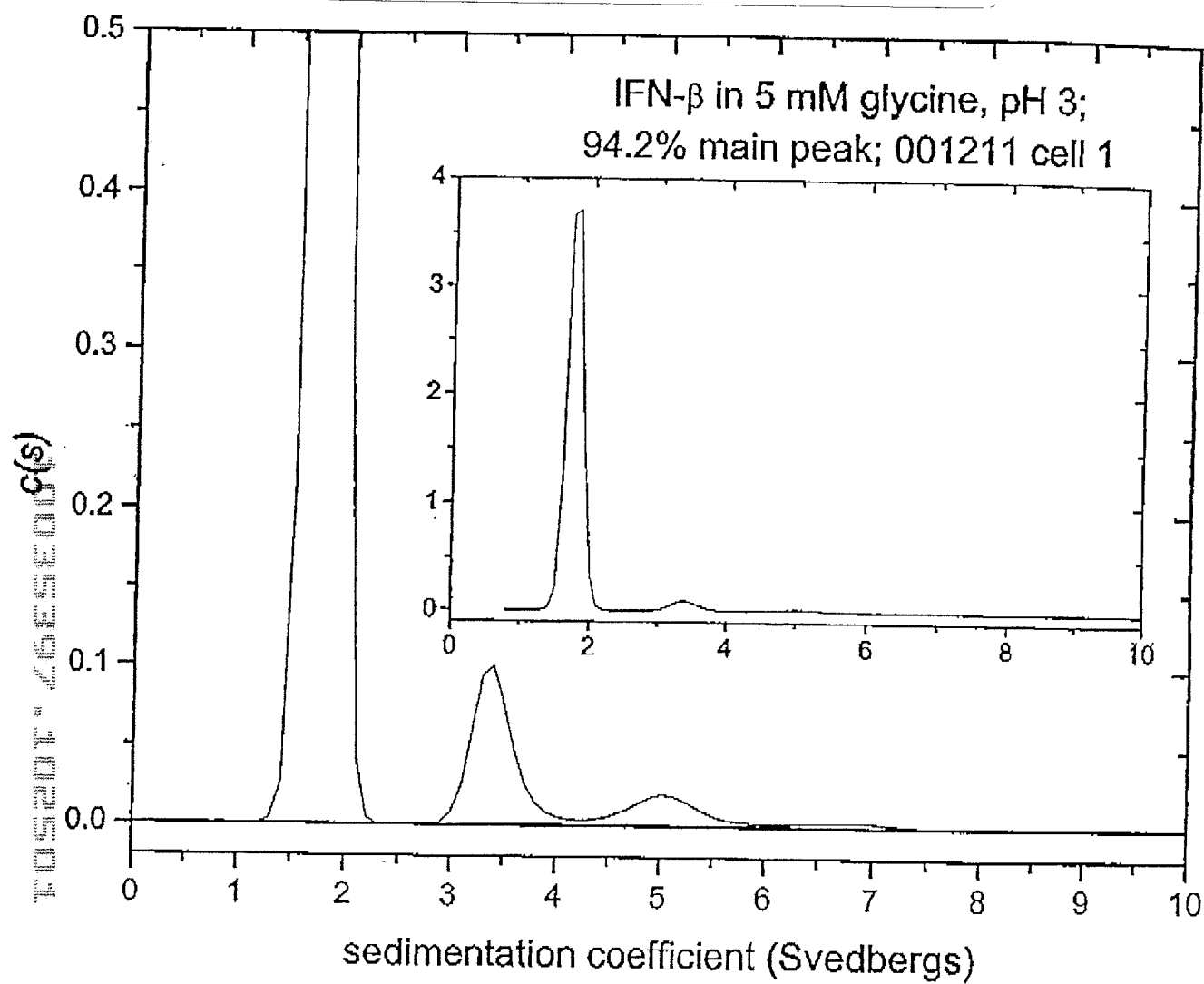


Figure 6

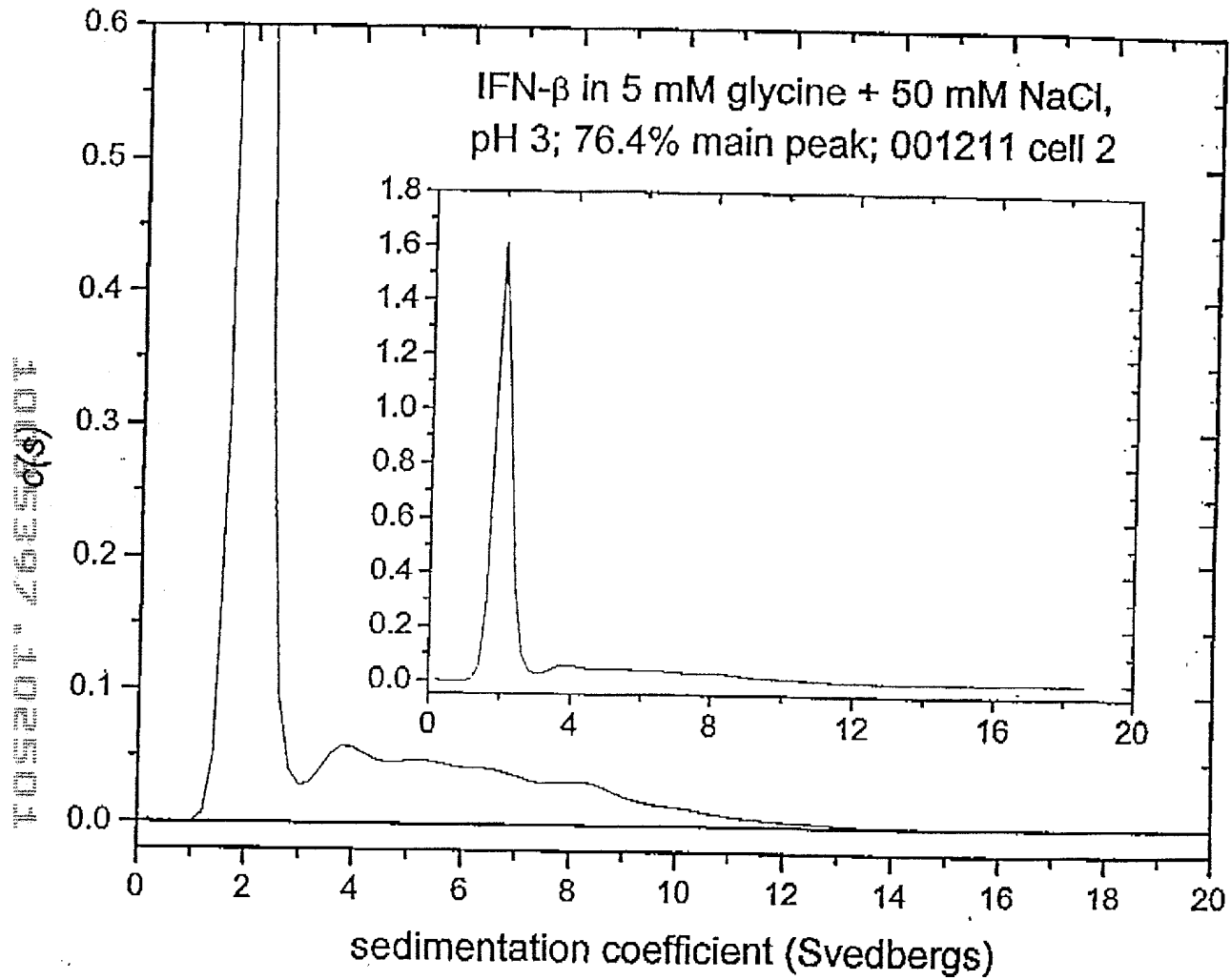


Figure 7

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka
Application No: Not yet assigned
Atty Dkt No: PP17201.003 (35784/240412)

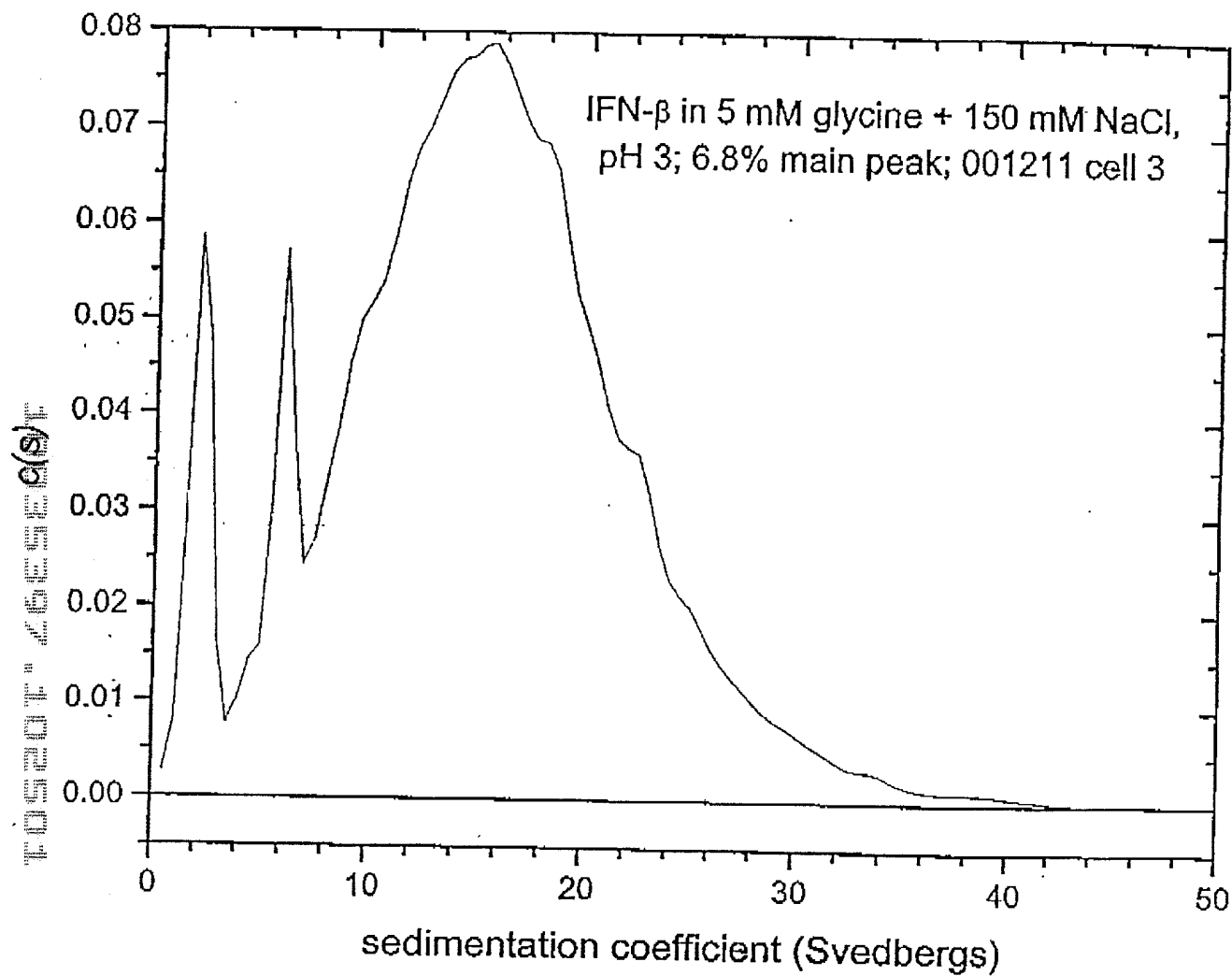


Figure 8

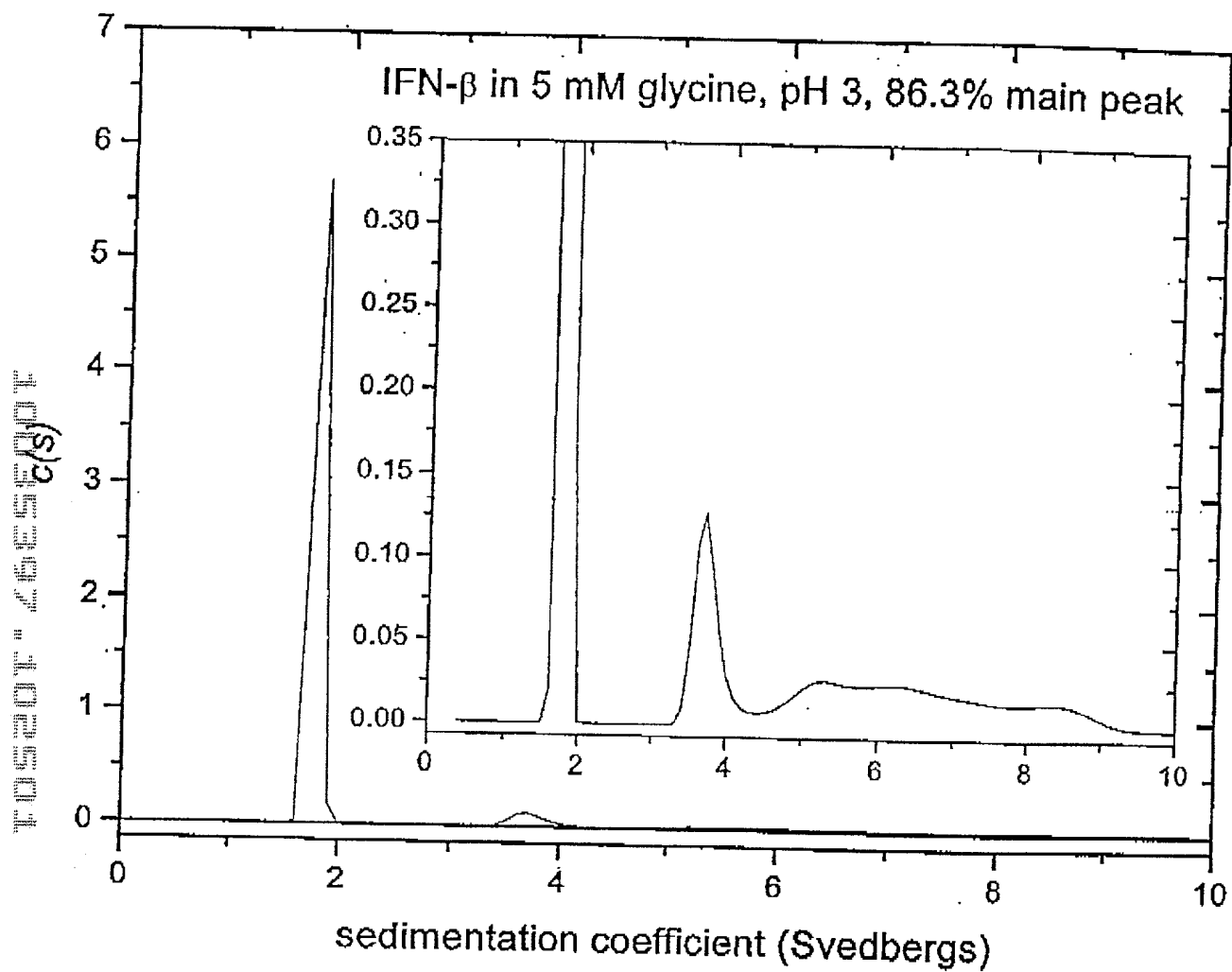


Figure 9

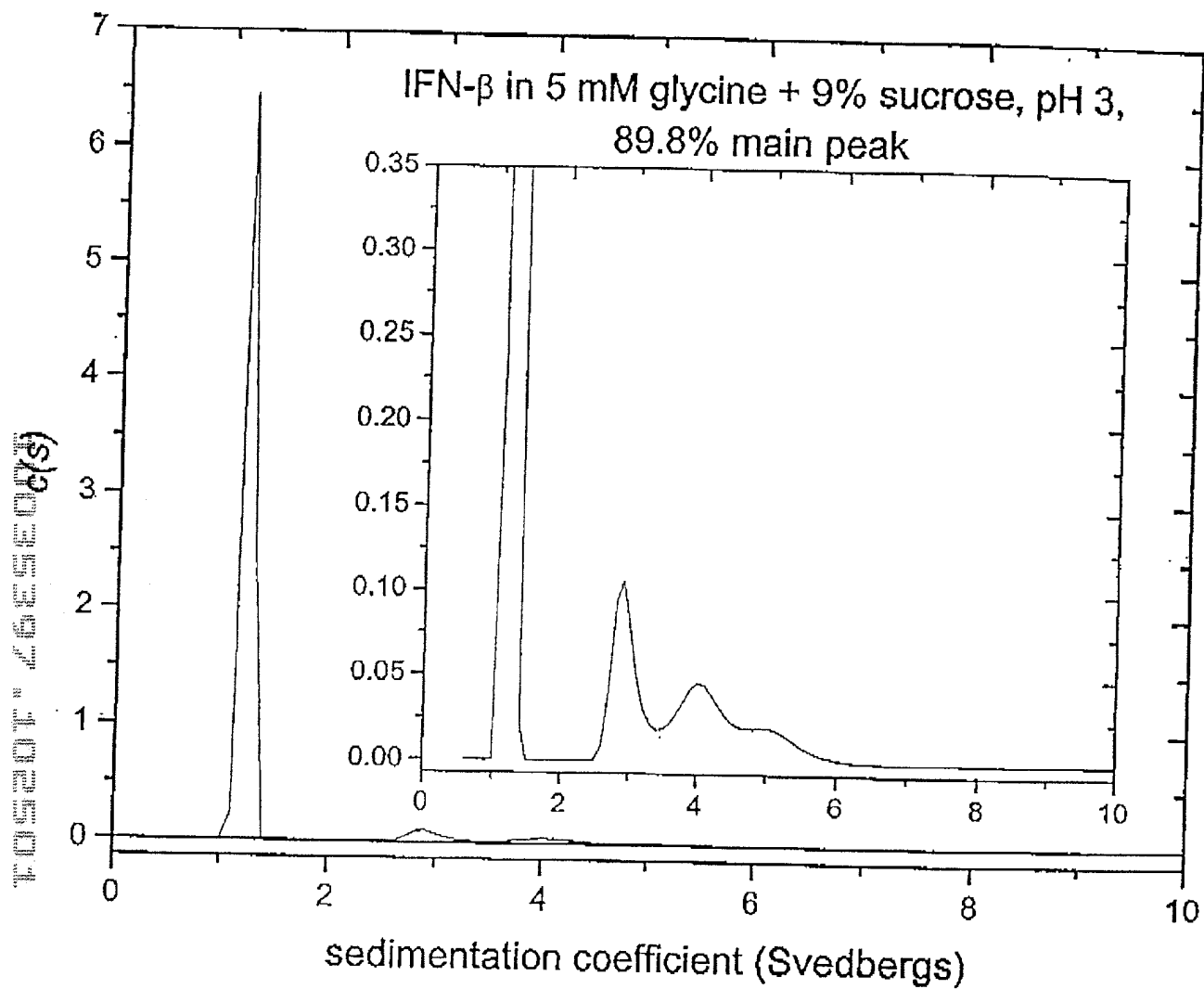


Figure 10

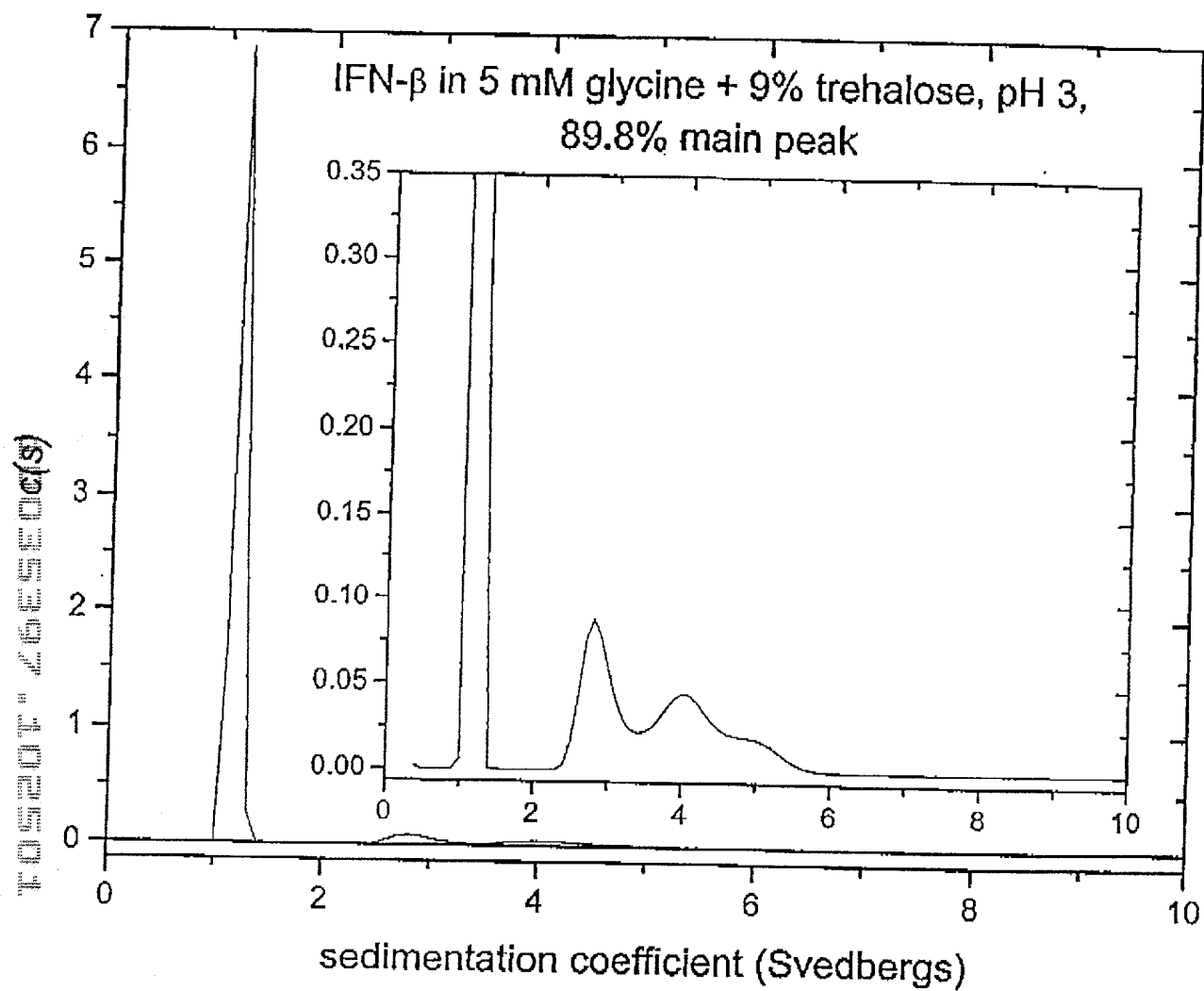


Figure 11

IFN-Beta-1b Lyophilized Formulations % of Initial Concentration UV Absorption 40°C

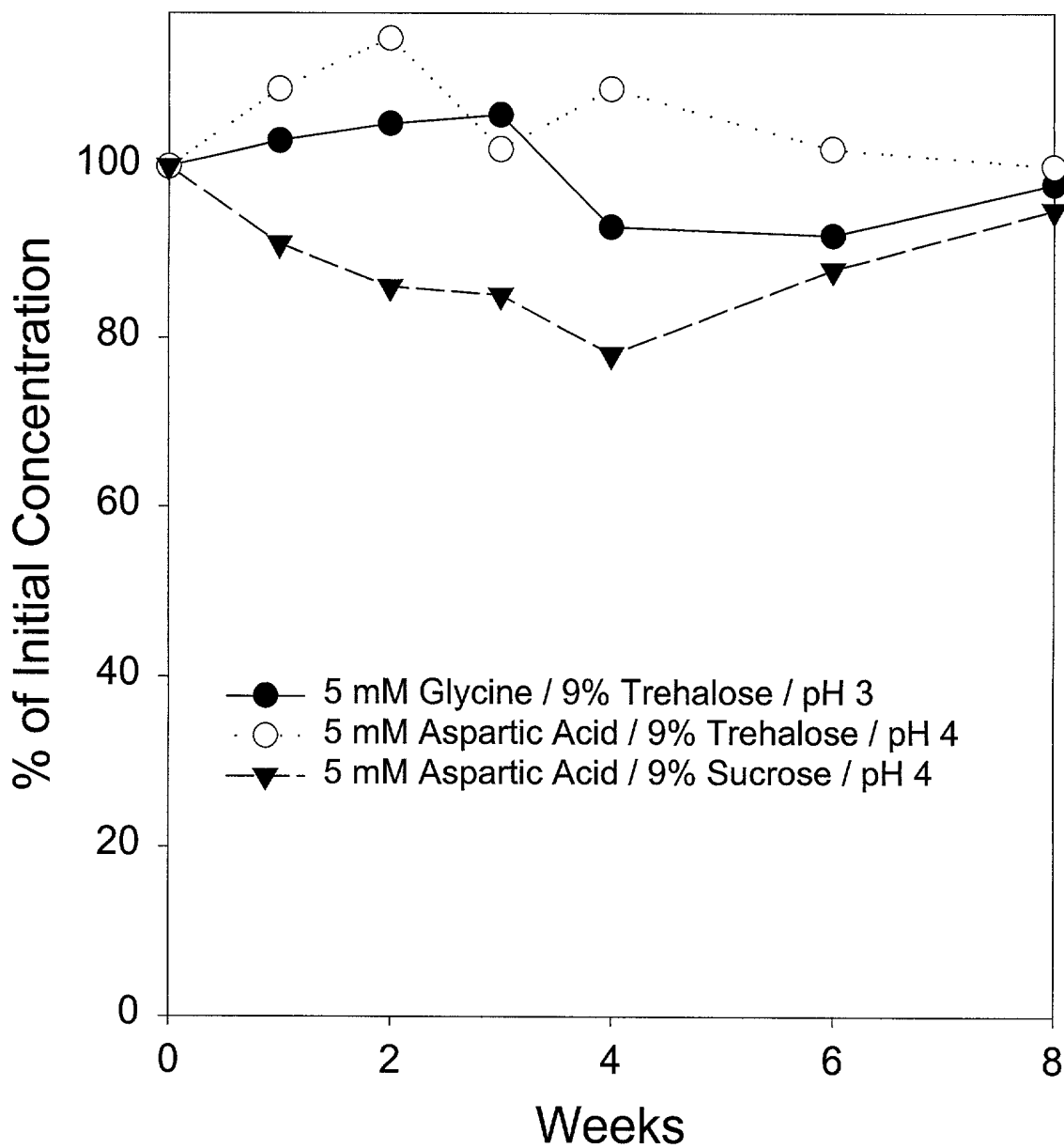


Figure 12

IFN-Beta-1b
Lyophilized Formulations
% Main Peak
RP-HPLC
40°C

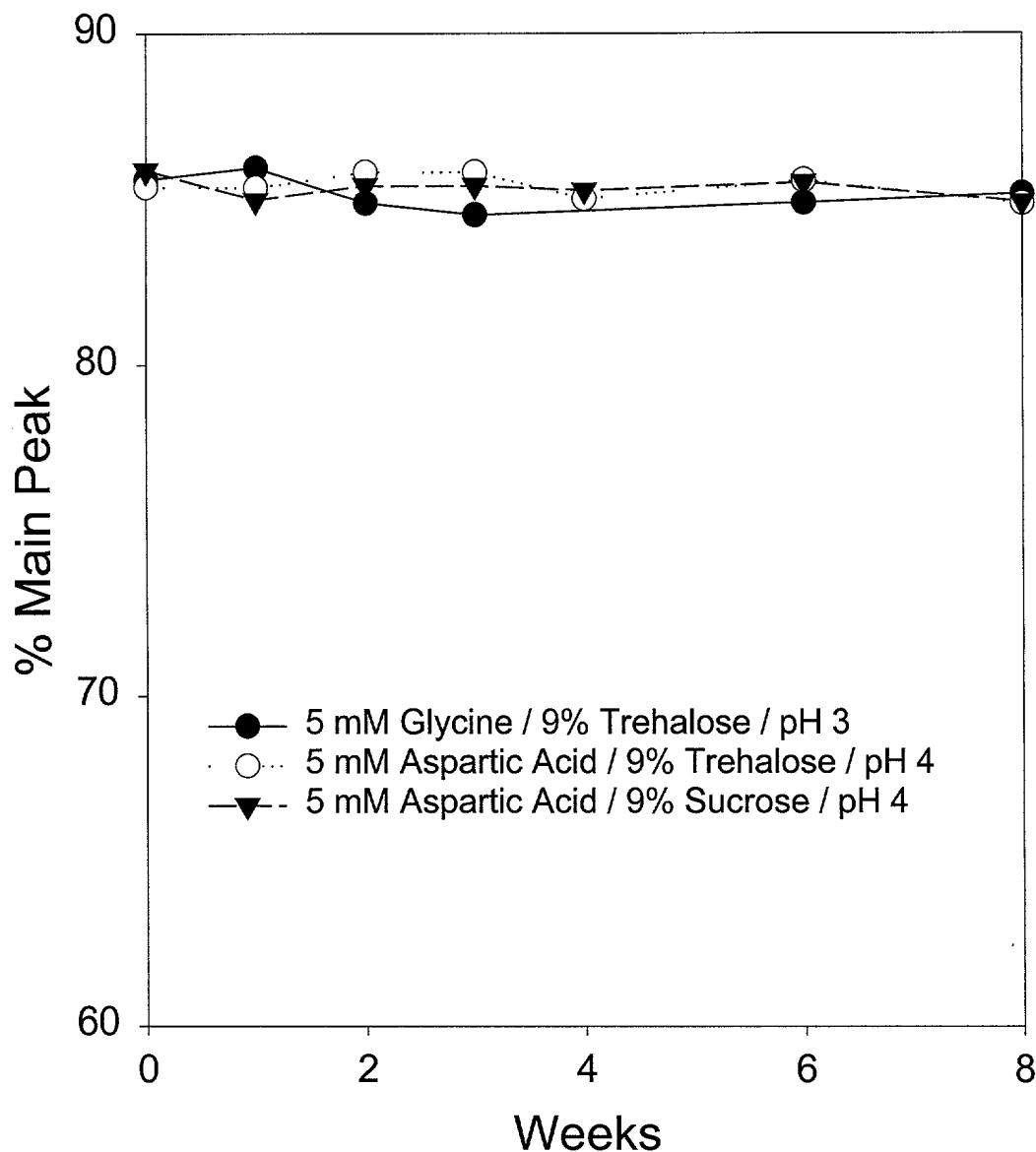


Figure 13

IFN-Beta-1b Lyophilized Formulations pH 3 & pH 4 % of Initial Concentration UV Spectroscopy

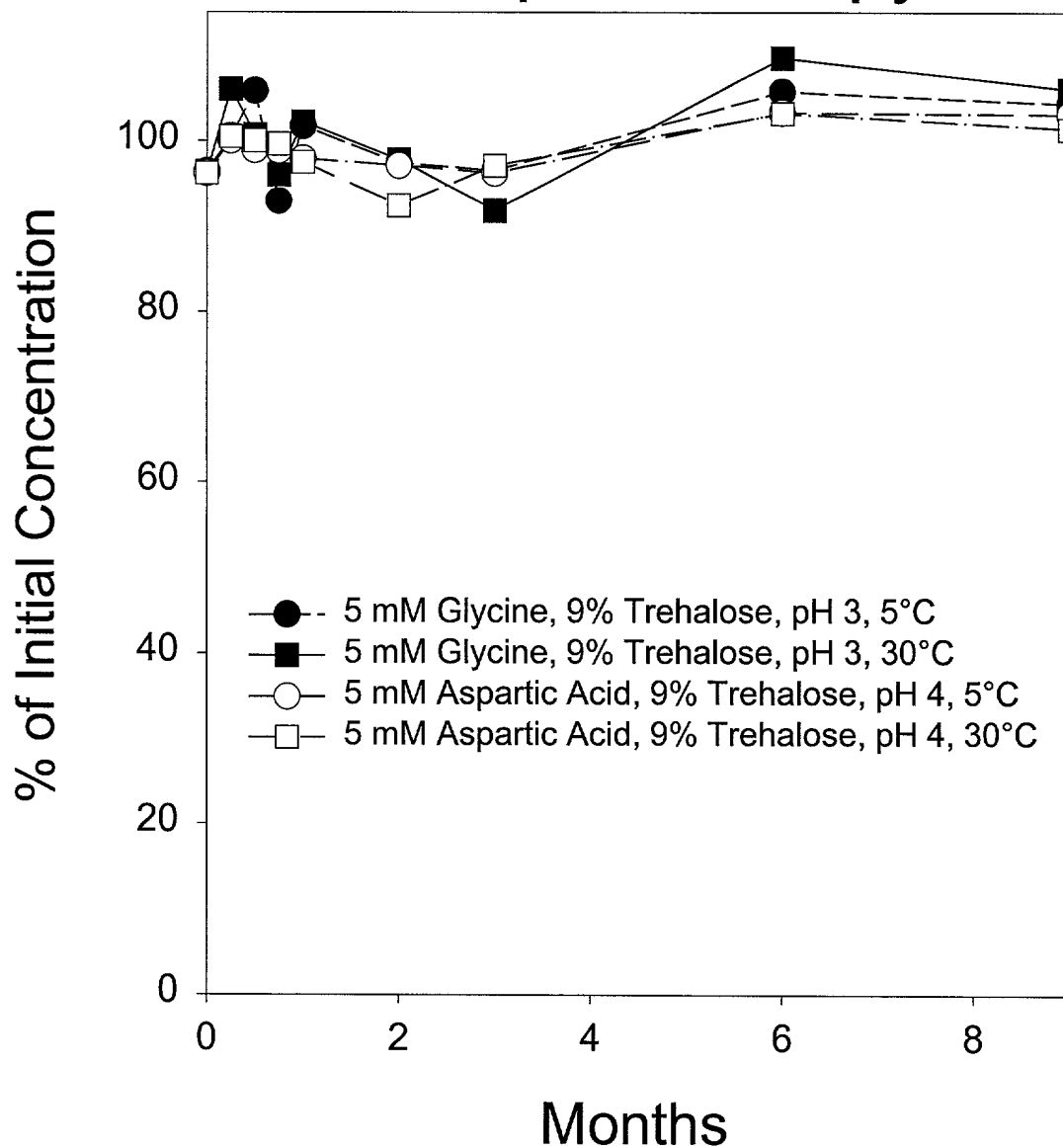


Figure 14

IFN-Beta-1b

Lyophilized Formulations

pH 3 & pH 4

% Main Peak

RP-HPLC

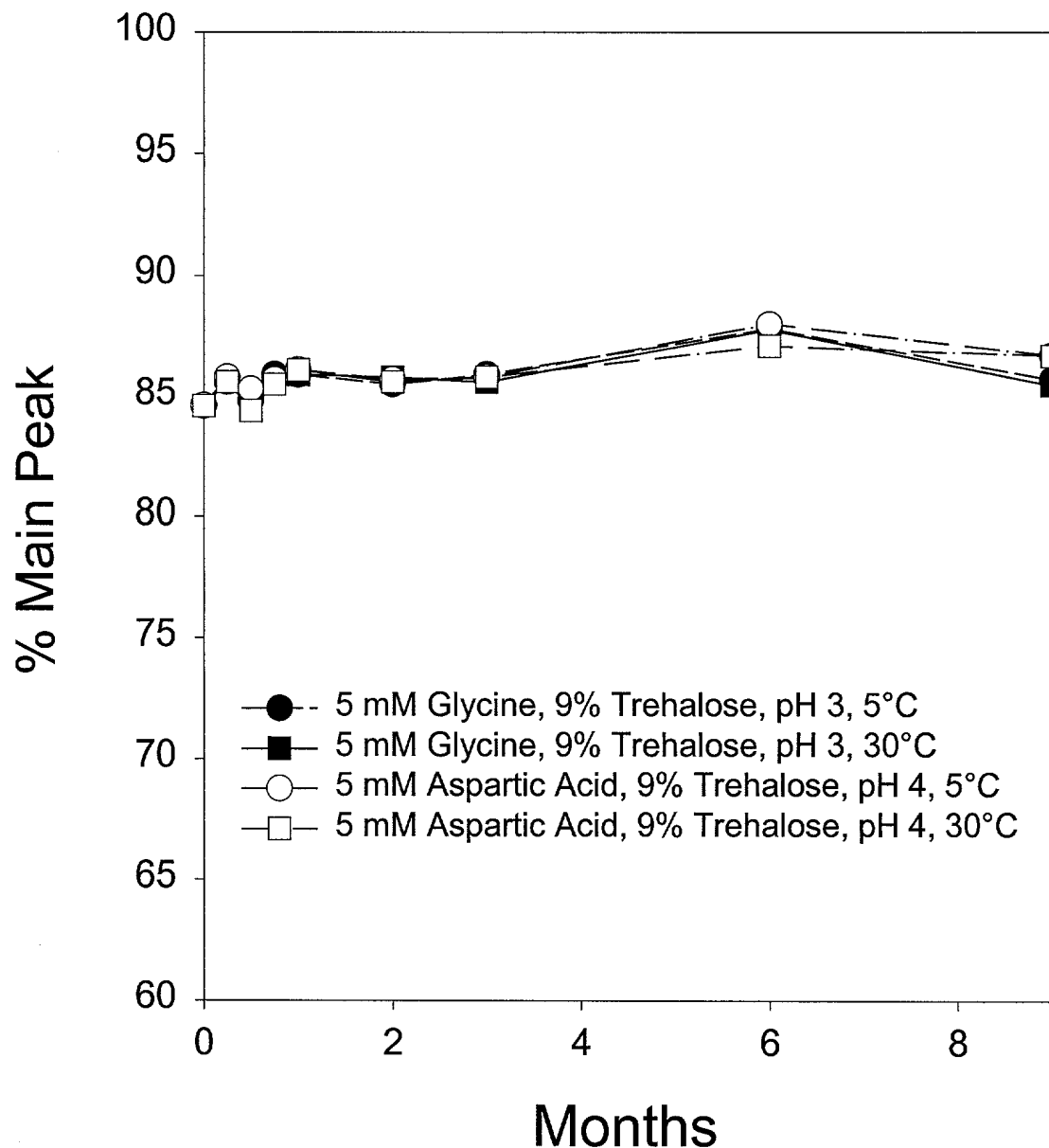


Figure 15

IFN-Beta-1b

Liquid Formulations

% of Initial Concentration

UV Absorbance

30°C

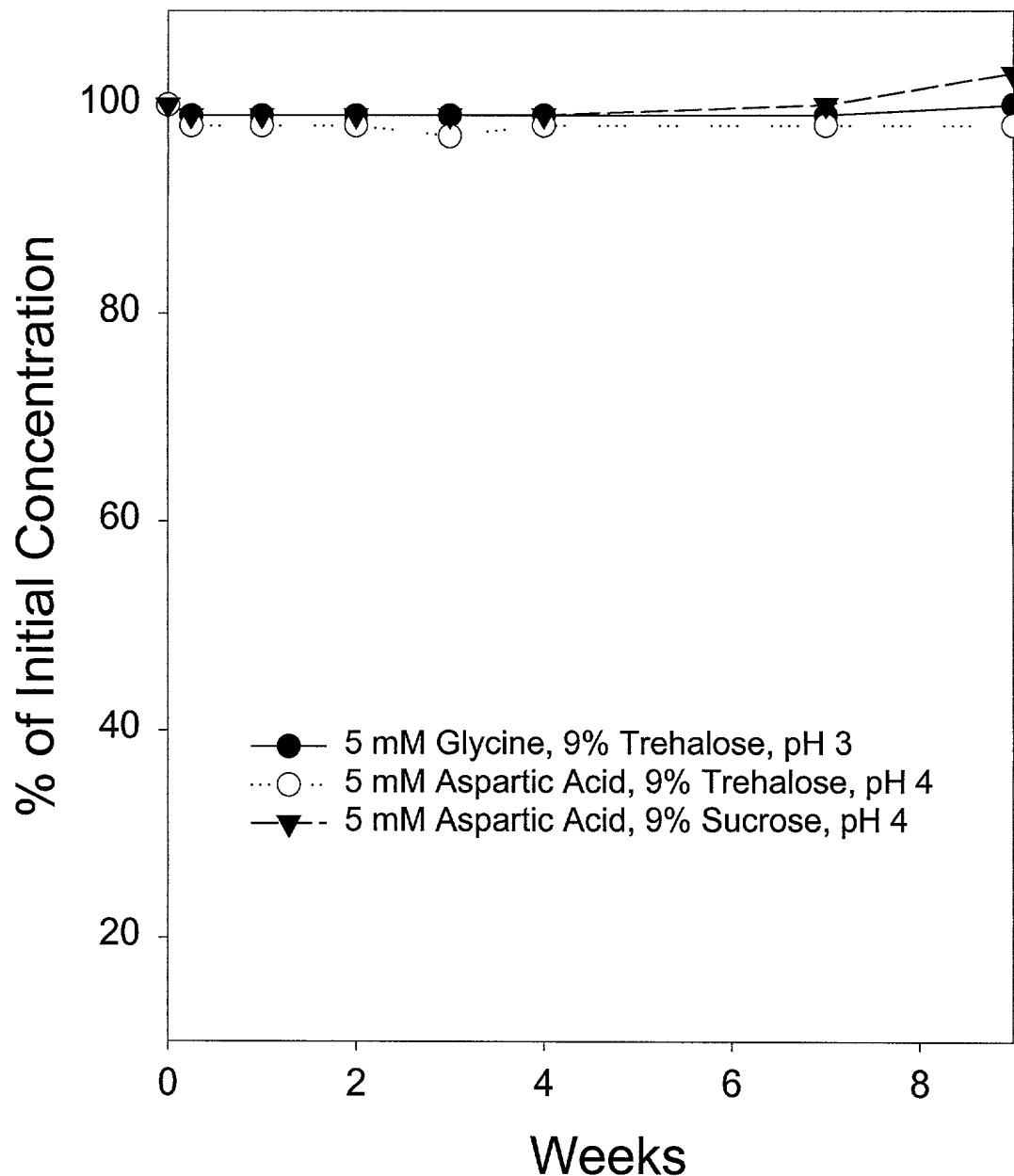


Figure 16

IFN-Beta-1b Liquid Formulations % Main Peak RP-HPLC 30°C

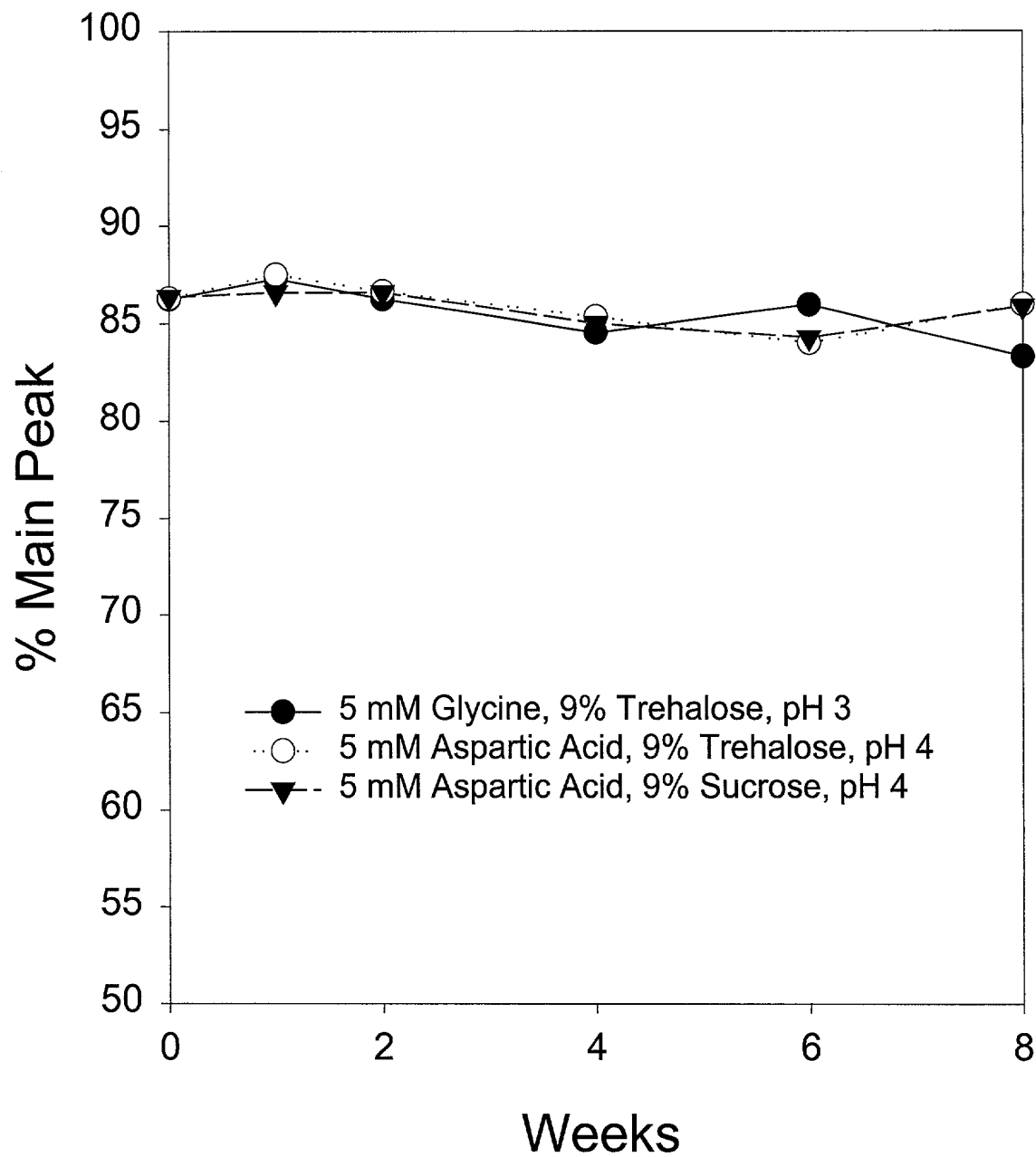


Figure 17

IFN-Beta-1b

Liquid Formulations in Vials

% of Initial Concentration

UV Spectroscopy

5°C

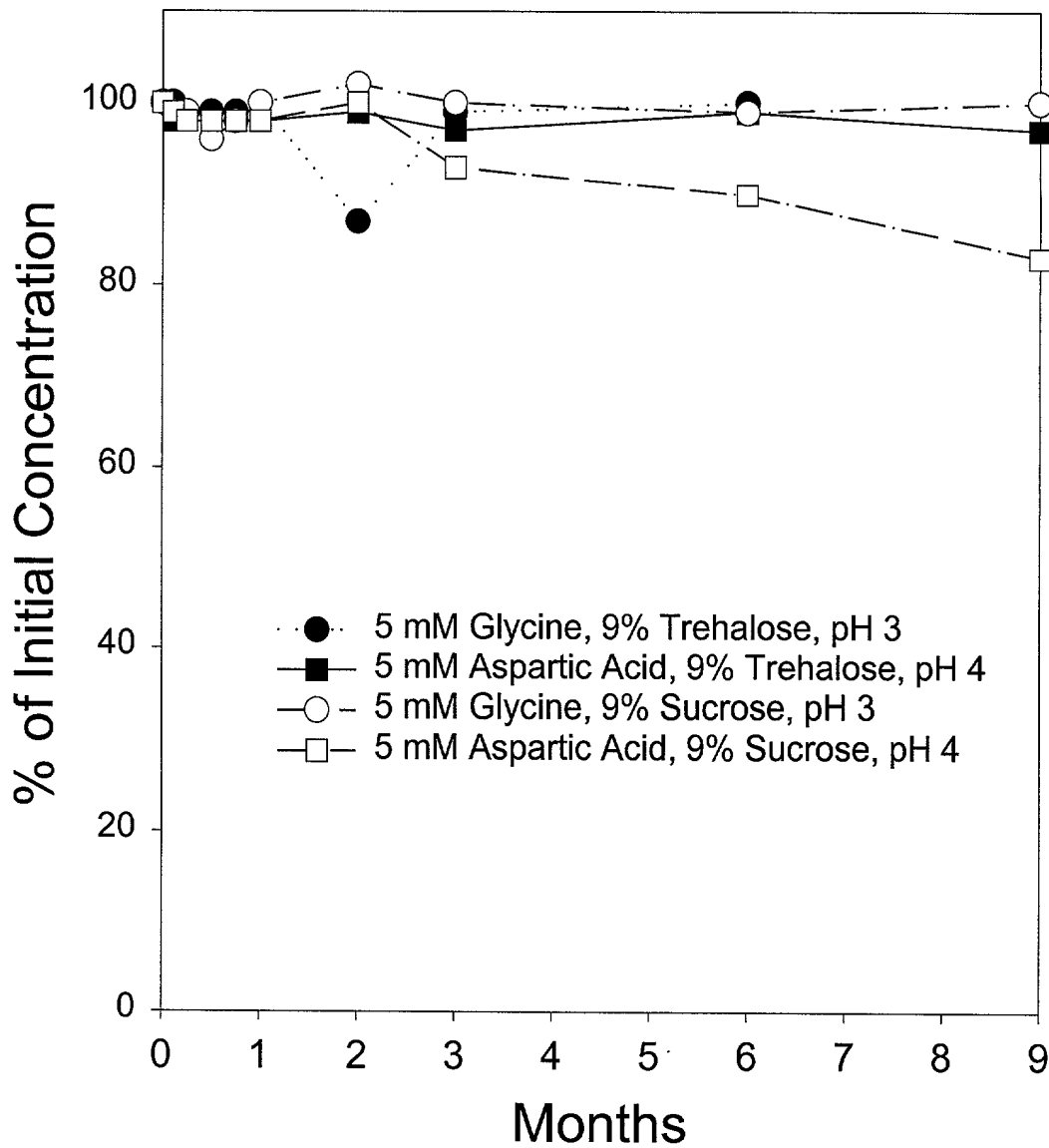


Figure 18

IFN-Beta-1b

Liquid Formulations in Vials

% Main Peak

RP-HPLC

5°C

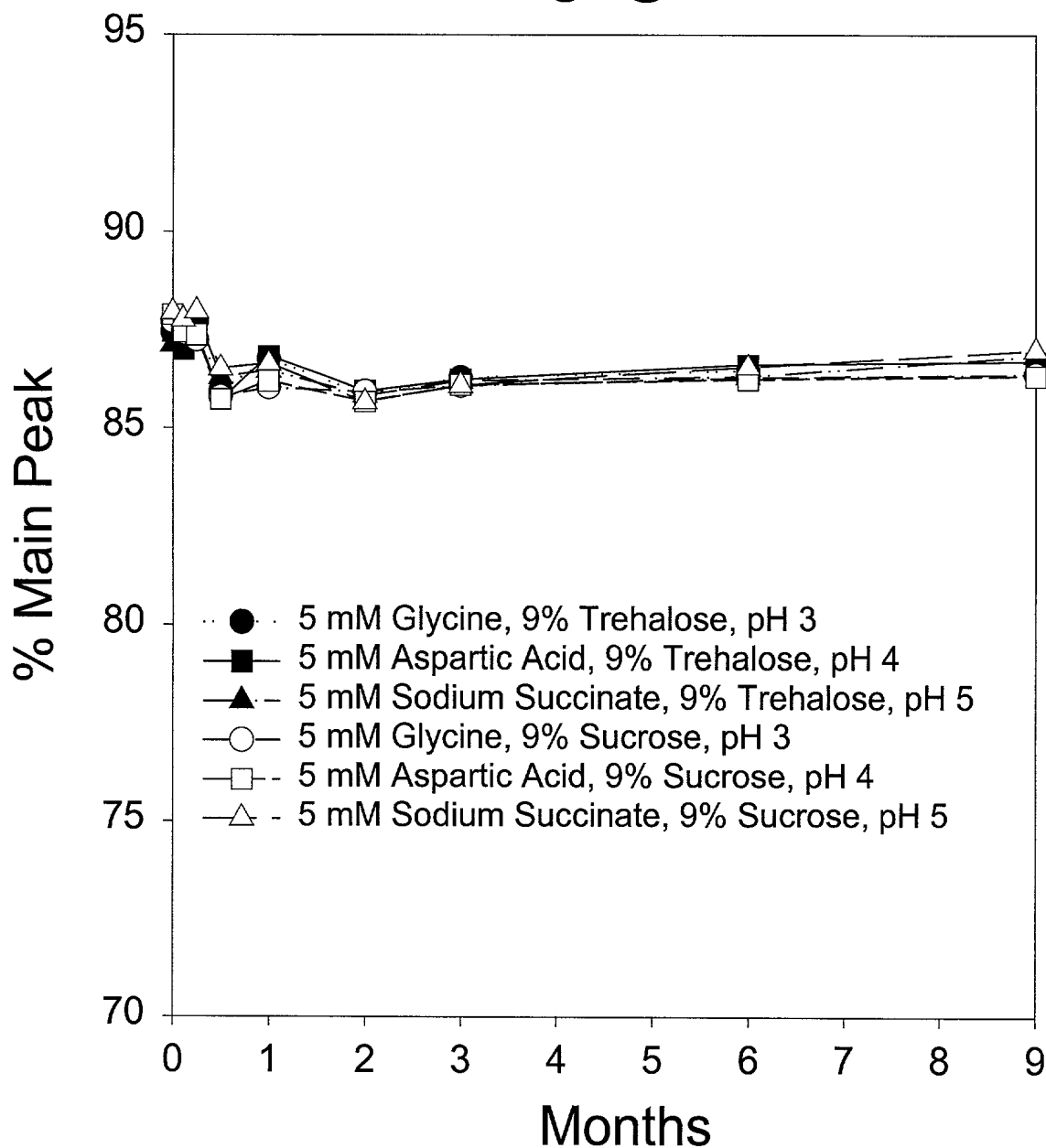


Figure 19

IFN-Beta-1b

Liquid Formulations

Containing Trehalose or Sucrose

% of Initial Concentration

UV Spectroscopy

30°C

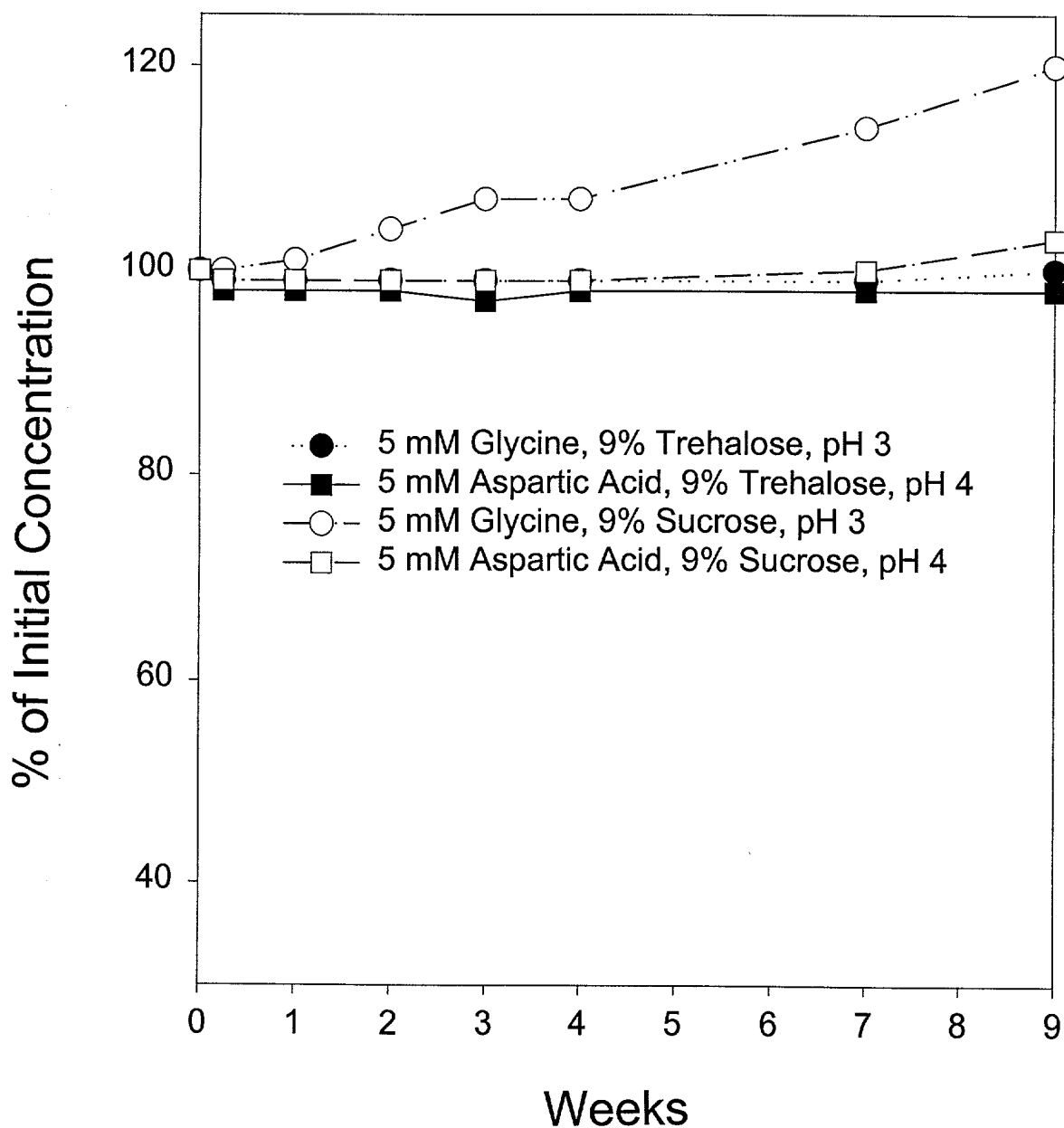


Figure 20

FIGURE 21

IFN- β -1b

Lyophilized Formulations

% of Initial Concentration

Containing Trehalose or Sucrose

pH 3 & 4

40°C

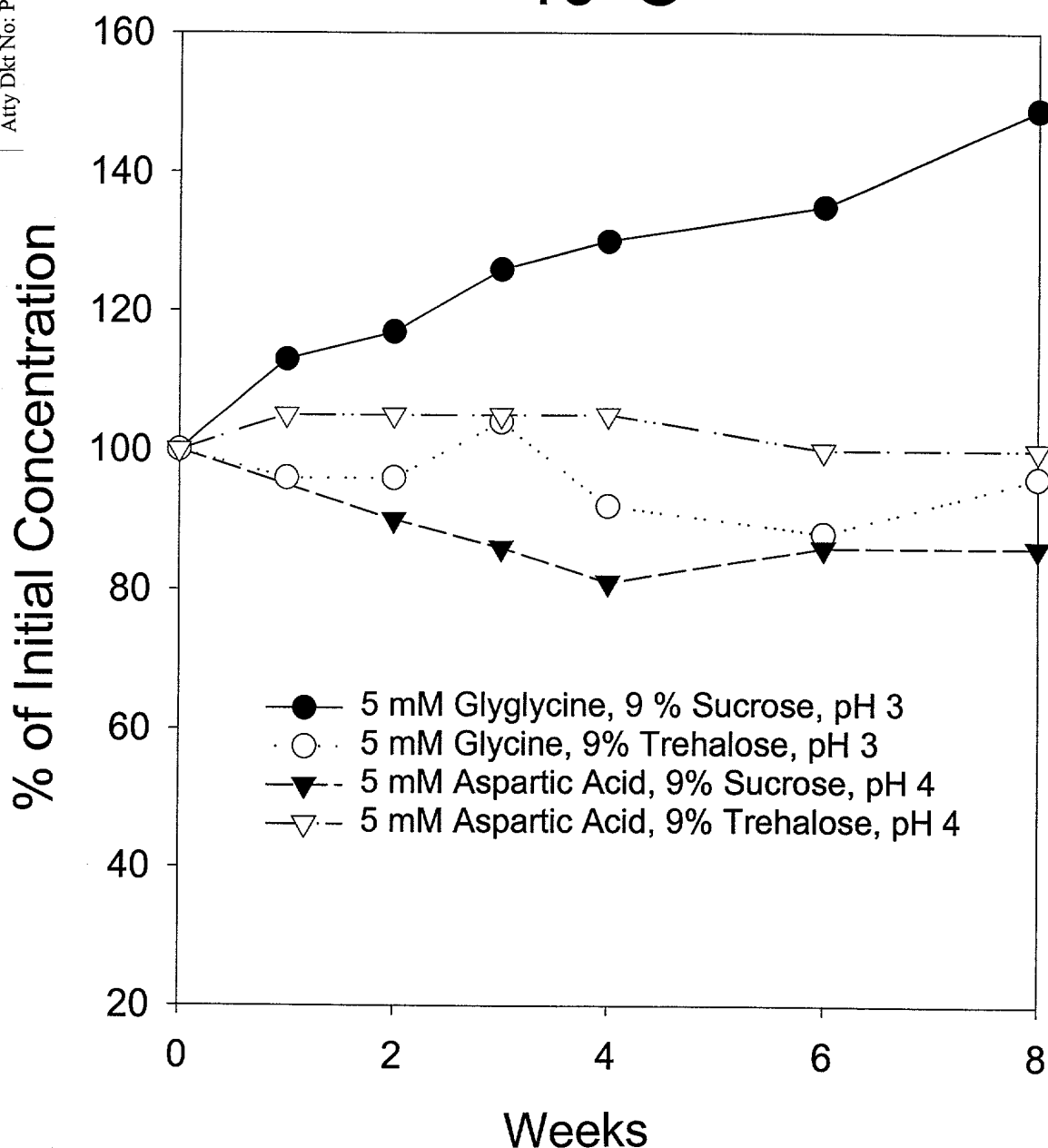


Figure 21

IFN-Beta-1b

Liquid Formulations Containing Mannitol

% of Initial Concentration

UV Spectroscopy

5°C

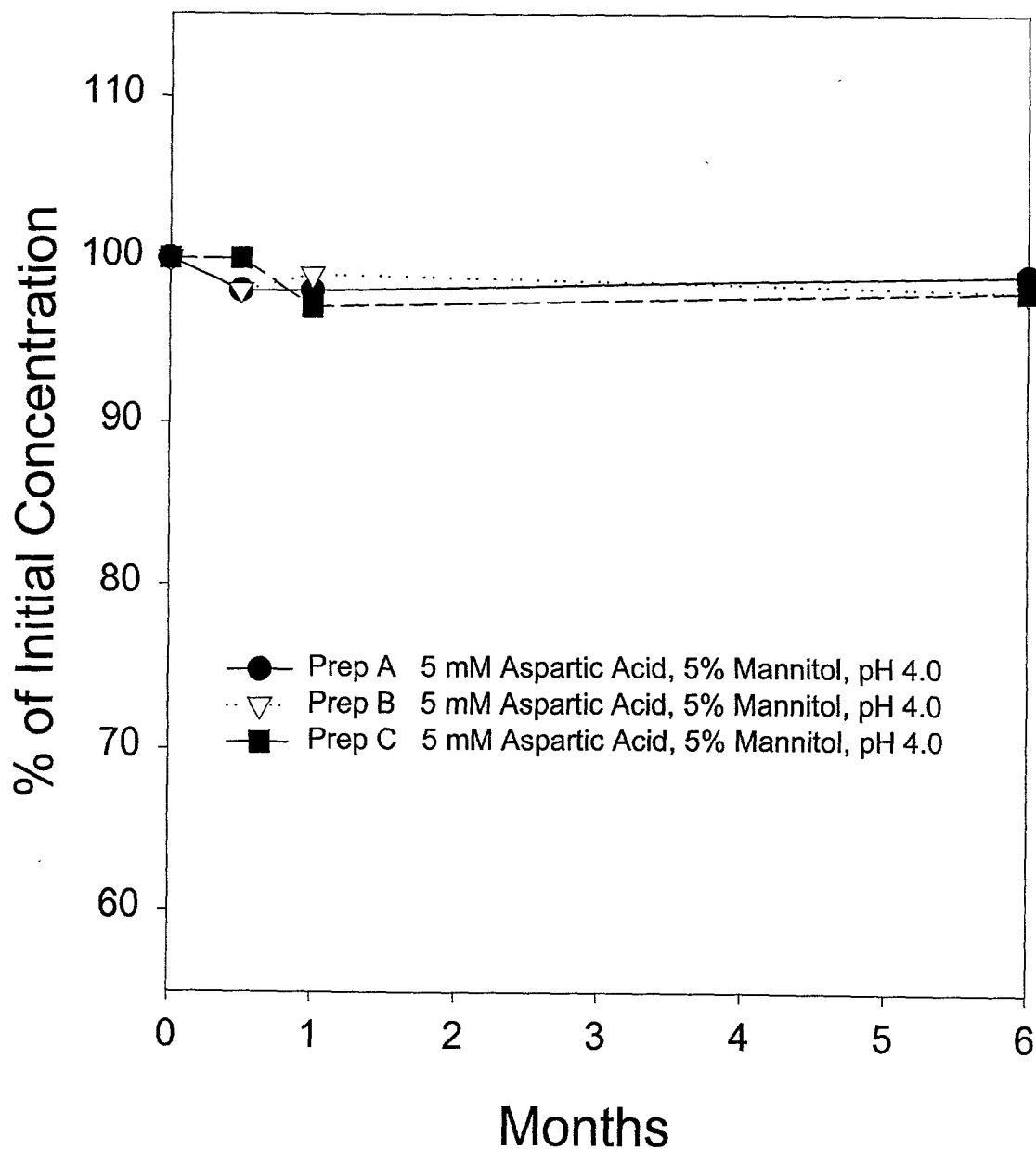


Figure 22

IFN-Beta-1b

Liquid Formulations Containing Mannitol

% Main Peak RP-HPLC 5°C

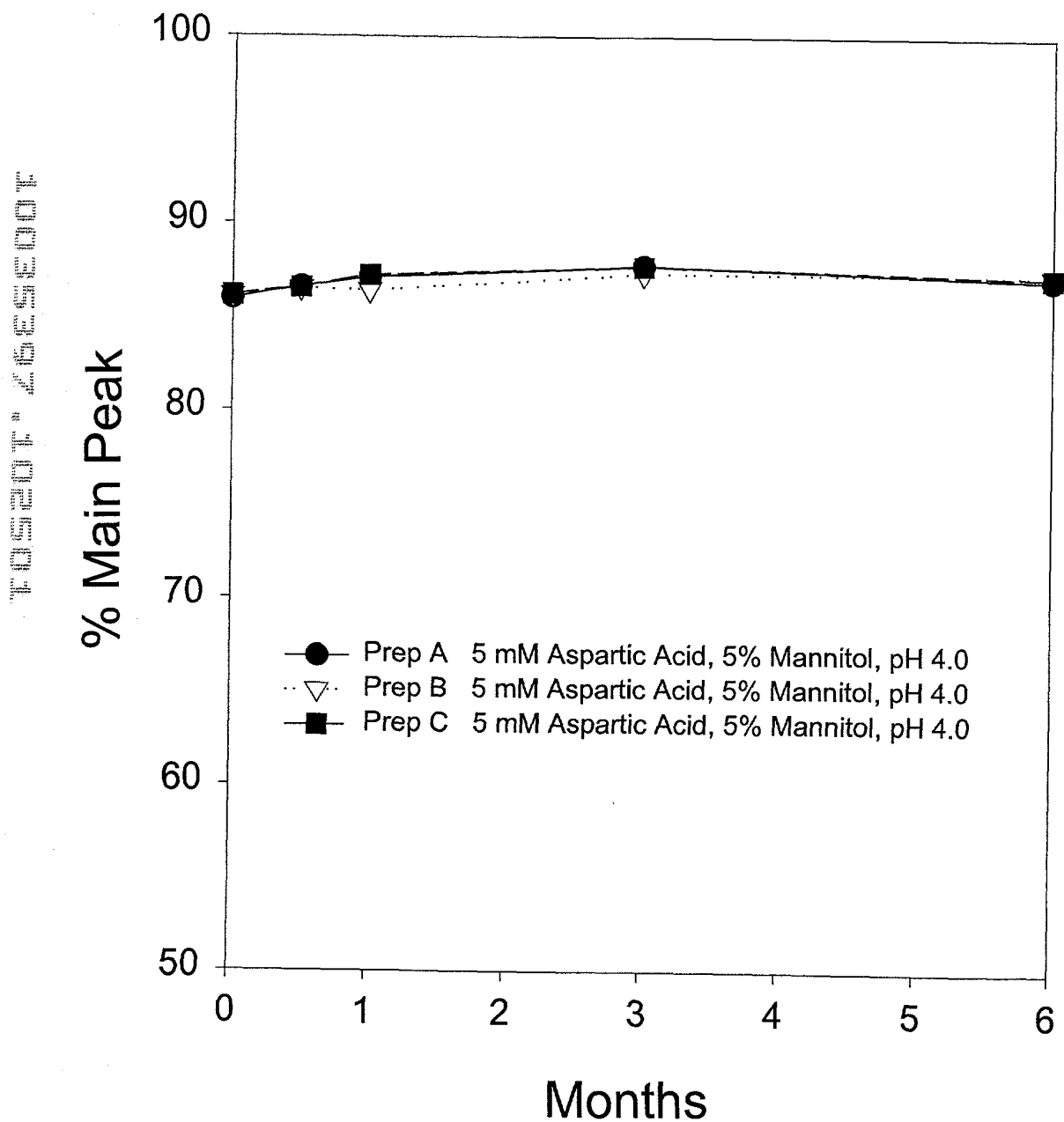


Figure 23